

**CREDIT OPINION**

10 September 2024

Update



**RATINGS**

**Qatar National Bank (Q.P.S.C.)**

Domicile	DOHA, Qatar
Long Term CRR	Aa2
Type	LT Counterparty Risk Rating - Fgn Curr
Long Term Deposit	Aa3
Type	LT Bank Deposits - Fgn Curr
Outlook	Stable

Please see the [ratings section](#) at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

**Contacts**

Abdulla AlHammadi, +971.50.640.0207  
CFA  
AVP-Analyst  
abdulla.alhammadi@moodys.com

George Korniliou, +357.25.696.061  
CFA  
Lead Ratings Associate  
george.korniliou@moodys.com

Alexios Philippides +357.2569.3031  
VP-Senior Analyst  
alexios.philippides@moodys.com

Nitish Bhojnagarwala +971.4.237.9563  
Senior Vice President/Manager  
nitish.bhojnagarwala@moodys.com

**Qatar National Bank (Q.P.S.C.)**

Update to credit analysis

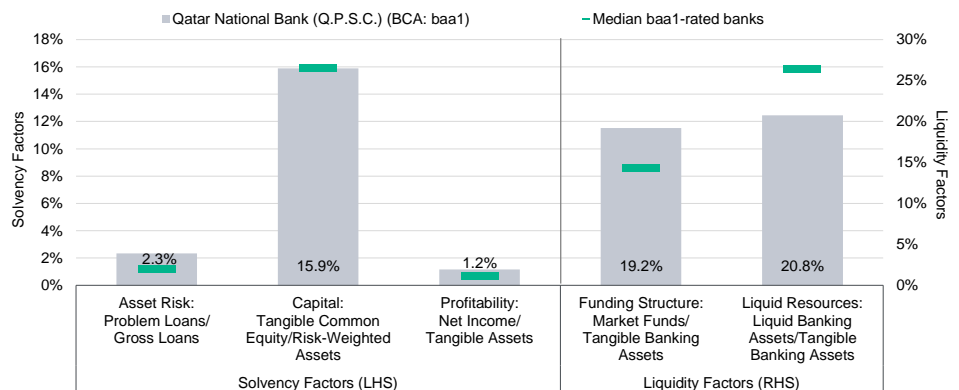
**Summary**

We assign Aa3/Prime-1 deposit ratings to [Qatar National Bank \(Q.P.S.C.\)](#) (QNB), the country's largest bank with around 53.6% domestic market share in total assets. The deposit ratings incorporate a very high likelihood of support from the [Government of Qatar](#) (Aa2 stable), which translates into four notches of uplift from the bank's baa1 Baseline Credit Assessment (BCA).

The baa1 BCA reflects QNB's (1) strong profitability, supported by the bank's dominant market position and strong government relationships; (2) asset quality although weakening remains solid combined with solid capitalisation; (3) diversified funding profile; and (4) some geographical diversification as a result of non-domestic operations. These strengths are moderated by (1) an increased risk in some jurisdictions, including the bank's presence in the operating environment of [Turkiye](#) (B1 positive), which we expect to exert pressures on profitability and asset quality, and [Egypt](#) (Caa1 positive); (2) the high degree of concentration on both sides of the balance sheet and (3) very high external funding.

Exhibit 1

**Rating Scorecard - Key financial ratios**



Problem loan and profitability ratios are the weaker of the three-year averages and the latest reported figures; the capital ratio is the latest reported figure, and the funding structure and liquid asset ratios are the latest year-end figures.

Source: Moody's Ratings

## Credit strengths

- » Strong profitability, supported by the bank's dominant domestic market position and government relationships
- » Asset quality although weakening remains low, with solid long-run loss performance
- » Solid capitalisation
- » Diversified funding profile
- » Very high probability of government support in case of need

## Credit challenges

- » High borrower concentration
- » Expectation of high credit costs because of ongoing challenges in domestic real estate, contracting and hospitality sector and international operations in riskier markets
- » Persistently very high external funding

## Outlook

The stable outlook on QNB's ratings is based on our expectation that the bank will maintain its solid asset quality, high profitability and solid capitalisation against the increasing risk in its international operations and the high level of external funding.

## Factors that could lead to an upgrade

- » QNB's BCA may be upgraded following: (1) a sustained improvement in the domestic operating environment, (2) a significant improvement in the bank's profitability without a material increase in its risk profile, and (3) a material reduction in external funding while maintaining the liquidity buffers.
- » QNB's deposit ratings may be upgraded if its BCA is raised and the four notches of uplift, because of government support, is maintained.

## Factors that could lead to a downgrade

- » QNB's BCA may be downgraded following: (1) a significant deterioration in the operating environment, (2) pressures resulting from its operations in riskier foreign markets, (3) a significant decline in its liquidity buffers or further increase in external funding and (4) continued weakening of asset quality.
- » QNB's deposit rating may be downgraded if the BCA is lowered or Qatar's sovereign rating is downgraded.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody's.com> for the most updated credit rating action information and rating history.

## Key indicators

Exhibit 2

### Qatar National Bank (Q.P.S.C.) (Consolidated Financials) [1]

	06-24 <sup>2</sup>	12-23 <sup>2</sup>	12-22 <sup>2</sup>	12-21 <sup>2</sup>	12-20 <sup>2</sup>	CAGR/Avg. <sup>3</sup>
Total Assets (QAR Million)	1,260,834.8	1,230,985.0	1,189,219.0	1,093,037.6	1,025,015.1	6.1 <sup>4</sup>
Total Assets (USD Million)	346,288.0	338,089.8	326,551.5	300,140.8	281,520.2	6.1 <sup>4</sup>
Tangible Common Equity (QAR Million)	88,368.8	87,864.3	81,399.7	76,179.8	73,507.7	5.4 <sup>4</sup>
Tangible Common Equity (USD Million)	24,270.5	24,131.9	22,351.8	20,918.5	20,188.9	5.4 <sup>4</sup>
Problem Loans / Gross Loans (%)	2.3	2.4	2.4	1.9	1.8	2.2 <sup>5</sup>
Tangible Common Equity / Risk Weighted Assets (%)	15.9	16.9	15.7	15.3	14.8	15.7 <sup>6</sup>
Problem Loans / (Tangible Common Equity + Loan Loss Reserve) (%)	18.3	18.1	18.5	15.4	14.5	17.0 <sup>5</sup>
Net Interest Margin (%)	2.5	2.4	2.5	2.1	2.1	2.3 <sup>5</sup>
PPI / Average RWA (%)	5.4	5.8	5.3	4.2	3.8	4.9 <sup>6</sup>
Net Income / Tangible Assets (%)	1.2	1.2	1.1	1.1	1.1	1.1 <sup>5</sup>
Cost / Income Ratio (%)	23.8	21.3	20.9	23.6	25.7	23.1 <sup>5</sup>
Market Funds / Tangible Banking Assets (%)	17.0	19.2	18.4	16.7	16.0	17.5 <sup>5</sup>
Liquid Banking Assets / Tangible Banking Assets (%)	20.5	20.8	23.1	19.1	19.3	20.6 <sup>5</sup>
Gross Loans / Due to Customers (%)	101.9	104.1	99.5	100.5	101.0	101.4 <sup>5</sup>

[1] All figures and ratios are adjusted using Moody's standard adjustments. [2] Basel III - fully loaded or transitional phase-in; IFRS. [3] May include rounding differences because of the scale of reported amounts. [4] Compound annual growth rate (%) based on the periods for the latest accounting regime. [5] Simple average of periods for the latest accounting regime. [6] Simple average of Basel III periods.

Sources: Moody's Ratings and company filings

## Profile

Qatar National Bank (Q.P.S.C.) (QNB) is the largest bank in Qatar, with a market share at around 53.6% of the country's banking system assets. The bank reported a consolidated asset base of QAR 1,261 billion (\$346.3 billion) as of June 2024.

QNB provides corporate, retail, investment, treasury, wealth management, brokerage and custody banking products and services to individuals, corporate institutions and government agencies, both in Qatar and internationally.

QNB was established in 1964 as the first Qatari government-owned commercial bank. The Qatari government holds a 50% stake in QNB through its investment arm, Qatar Investment Authority, while the remaining 50% is publicly traded. Since 1997, the bank's shares have been listed on the Qatar Stock Exchange (ticker: QNBK).

For more information about the bank, see [Qatar National Bank \(Q.P.S.C.\) Key Facts and Statistics](#).

## Detailed credit considerations

### QNB's ratings capture its diversified international operations

The bank's Moderate+ Macro Profile scorecard outcome takes into account its operations in [Qatar \(Strong-\)](#), [Turkiye \(Weak\)](#), [Egypt \(Very Weak\)](#) and Europe (Strong). QNB operates mainly in Qatar.

### High profitability, supported by the bank's dominant domestic market position and strong government relationships

QNB's high profitability is underpinned by its dominant presence in Qatar and its strong links with the Qatari government — the bank's largest shareholder. QNB is 50% directly owned by the Qatari government through its sovereign wealth fund, Qatar Investment Authority, which we expect to continue to provide access to a large volume of relatively low-risk lending opportunities. In terms of geographical breakdown, in the six months of 2024, 73% of QNB's net profit was generated from Qatar, while 27% overseas, providing diversification benefits to the franchise.

QNB's net profit increased by 8.5% in the first six months of 2024, which translated into a return on tangible assets of 1.2% as of June 2024 (same as in the first six months of 2023)<sup>1</sup>. This performance takes into account the hyperinflation adjustment linked to high inflation levels in Turkiye, which came into effect in the second quarter of 2022 and lowered the bank's profitability by QAR 2.06 billion during the six months ended June 2024 compared to QAR 1.17 billion in the six months ended June 2023. We expect this adjustment to likely continue over the next few quarters as inflation levels in Turkiye remain elevated, although improving.

The growth in profitability was mainly due to: 1) higher net interest income which increased by around 11.7% in the first six months of 2024 year-on-year, driven by strong net interest margin, which increased to 2.5% in the first six months of 2024 from 2.3% a year earlier mainly driven by higher rates at markets where QNB operates, 2) higher non-interest income driven by revaluation gains. Cost-to-income ratio increased to 23.8% during the first six months of 2024 compared to the year end 2023 (21.3%), driven mainly by higher increase in operating expenses compared to operating income. Loan loss provisioning constituted 24% of pre-provision income in June 2024.

Going forward we expect profitability to remain stable at QNB as pressured net interest margins driven by lower interest rates expected for H2 2024, will be offset by operating costs remaining low and provisioning charges normalizing towards pre-pandemic levels.

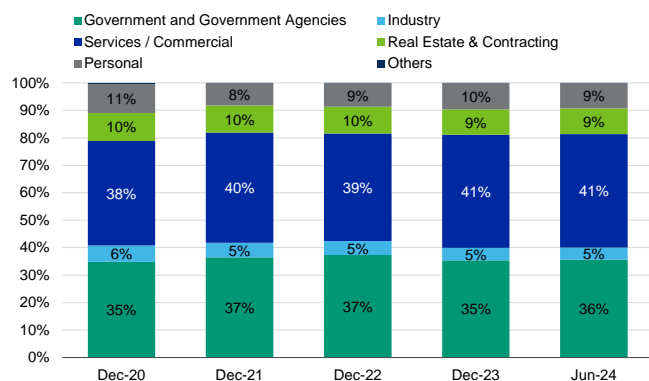
### Asset quality remains solid, moderated by high borrower concentrations and more risky overseas exposures

QNB's asset quality although weakening remains solid and compares favorably with that of its regional and global peers. The bank's nonperforming loan (NPL) ratio (defined as NPLs as a proportion of gross loans) was stable at 2.3% as of June 2024,<sup>2</sup> decreasing from 2.4% as of YE 2023, as there was no NPL formation on an adjusted basis. Loan-loss coverage decreased to 131%<sup>3</sup> as of June 2024 from 137% as of December 2023. The bank's asset quality is supported by its exposure to Qatari government and quasi-government entities which stood at 36% of total loans as of June 2024. These are high credit quality entities that have historically exhibited zero default rates.

The bank's NPL and coverage ratio and historically low credit costs relative to pre-provision income have shown consistently low volatility over multiple credit cycles, which is credit positive in our assessment of the bank's BCA. However, downside risks to the bank's asset quality stem from (1) its significant loan concentrations, with the top 20 loan exposures representing a sizeable portion of its capital, although a significant share of these top 20s is to high-quality governments and government-related entities; (2) domestic operations driven by lower economic activity as the number of visitors declined from the peak levels of the FIFA World Cup, overcapacity in the real estate & services sectors, ongoing issues with contractors and current interest rates and (3) its overseas expansion into countries with riskier sovereign profiles and weaker operating conditions than those of its home market.

Exhibit 3

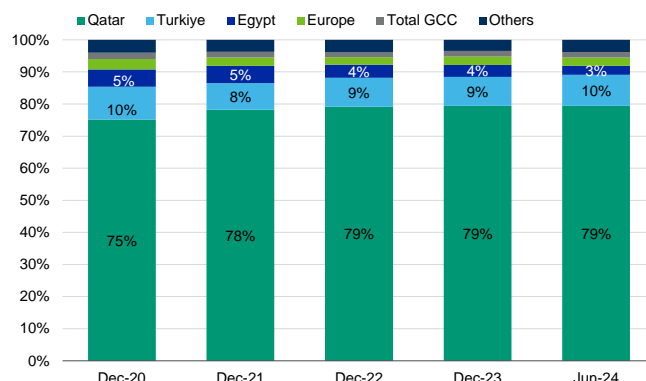
#### QNB's loan book breakdown by sector



Source: QNB Investor presentations

Exhibit 4

#### QNB's loan book breakdown by geography



Source: QNB Investor Presentations

QNB's strategy is to diversify its business and revenue away from the local market by increasing its international network. QNB's overseas activity includes [QNB Finansbank A.S.](#) (QNB Finansbank, Ba2 positive, b2<sup>4</sup>), which operates in Turkiye. QNB Finansbank is the eighth-largest bank in Turkiye and accounts for around 12% of QNB's balance sheet as of June 2024. The bank's international business also includes QNB Egypt, which is the second-largest private bank in Egypt, accounting for around 5% of QNB consolidated total assets as of June 2024. The bank's overseas footprint also expands through its affiliates such as a 20.1% stake in the Pan-African bank, [Ecobank Transnational Incorporated](#) (B3 Negative, b2<sup>5</sup>).

In Turkiye, the operating environment where the bank operates the most outside of Qatar, we expect a GDP growth of 3.2% in 2024 and 2.5% in 2025, following 4.5% in 2023 and 5.5% in 2022. Expected economic slowdown and still meaningfully high inflation as well

as lower credit growth in line with government policies, will weaken asset quality metrics and exert pressure on profitability and capital levels of Turkish banks. Asset quality remain also vulnerable to an eventual deterioration in borrower repayment capacity. However, QNB Finansbank's reported coverage ratio remains adequate at 116% as of June 2024, partly mitigating the risks arising from these potential losses.

### **Solid capitalisation**

We expect the bank to maintain its capital levels in the next 12-18 months because its healthy internal capital generation would balance the capital requirements of its loan-book growth.

QNB's strong capitalisation supports its standalone risk profile. The bank's tangible common equity-to-risk-weighted assets ratio was 15.9% as of June 2024, (16.9% as of December 2023), supported by a high and consistent profit generation. At the same time, the bank's published Tier 1 ratio was 18.1% as of June 2024, well above the current regulatory minimum of 14%. At these levels, the bank's capitalisation compares favorably with its global peers.

The bank's reported Tier 1 ratio includes QAR 20 billion Additional Tier 1 perpetual capital notes. The Additional Tier 1 notes continues to provide the bank with a high loss-absorption capacity and an ability to meet the Qatar Central Bank's regulatory requirements. The bank is subject to a 3.5% domestic systemically important bank charge, which implies fully loaded Basel III minimum Common Equity Tier 1 capital and Tier 1 ratios of 12% and 14%, respectively.

### **Solid and diversified funding, although reliance on external funding remains very high**

QNB also maintains a diversified funding profile and strong liquidity buffers, being the country's leading institution. The bank is mainly funded by deposits, which comprised 71% of its total assets as of June 2024. QNB's funding profile compares favourably with that of its domestic peers, with a net loan-to-deposit ratio of around 98.7% as of June 2024, broadly in line with the system.

Similar to other Qatari banks, QNB has access to large deposits from government and quasi-government agencies, which represented 27% of deposits as of June 2024.

The June 2024 year-on-year growth of government and related entities deposits reached 13%, higher than the overall system's deposits growth rate of 8%. Levels of public sector deposits at the system were supported by the strong fiscal position of the Qatari government on the back of significant increase in hydrocarbon-related revenue the past two years. As of June 2024 public sector deposits accounted for 36% of total deposits in the system (December 2023: 35%), and foreign funding had increased to 34.3% of total banking sector assets (December 2023: 33.4%). QNB's share of external or foreign funding (that is non-resident deposits, foreign interbank and debt securities) have remained high.

QNB is active in the international debt capital markets, through its various programmes with various maturities. While market funding reliance remained moderate at 17.0% of tangible banking assets as of June 2024, we note that more than 60% of it matures is short-term with maturity less than 12 months. This short term nature of market and external funding can also be explained by the current high interest rate environment. We expect the bank's funding maturity profile should normalize over the next 12 months, as interest rate cuts are announced during the year.

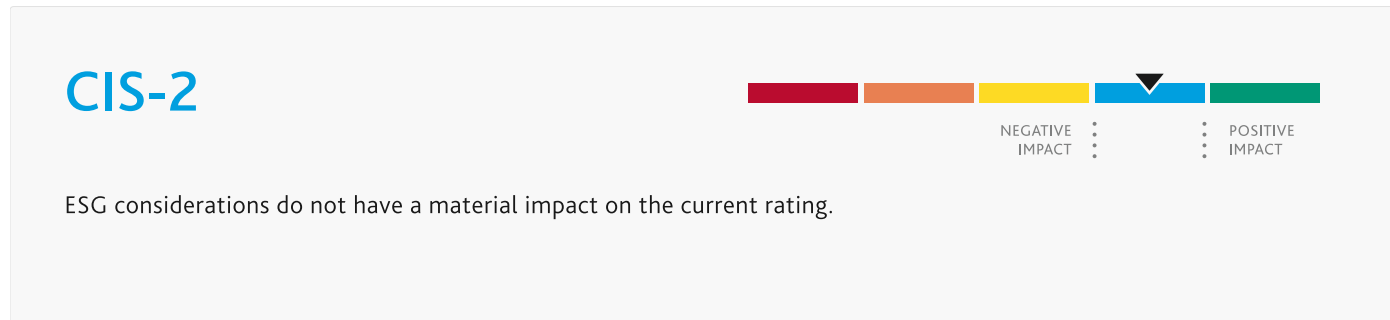
QNB's liquidity buffers are sound, with liquid assets representing 20.5% of tangible banking assets as of June 2024 (20.8% as of December 2023) and a liquidity coverage ratio of 185% as of June 2024.

## ESG considerations

Qatar National Bank (Q.P.S.C.)'s ESG credit impact score is CIS-2

Exhibit 5

### ESG credit impact score

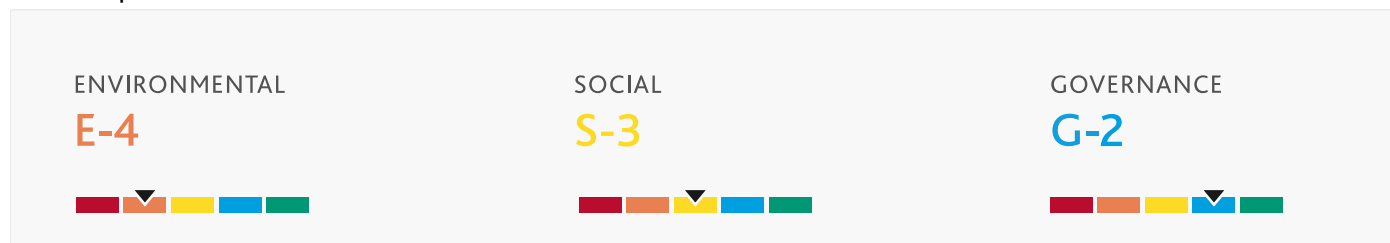


Source: Moody's Ratings

Qatar National Bank's **CIS-2** indicates that ESG considerations do not have a material impact on the rating.

Exhibit 6

### ESG issuer profile scores



Source: Moody's Ratings

### Environmental

Qatar National Bank faces relatively high exposure to environmental risks, mainly because of carbon transition risk. The bank operates predominantly in Qatar. The large contribution of the hydrocarbon industry to the Qatari economy and government finances together with the sovereign's significant economic footprint and employment of Qatari nationals in the public sector increase the bank's vulnerability to carbon transition risks that can potentially affect the creditworthiness of its counterparties.

### Social

Qatar National Bank faces moderate social risks from customer relations. These relate to regulatory and litigation risks, and high compliance standards, as well as to data security and customer privacy. QNB and Qatari banks are generally focused on intermediation with simpler product ranges and counterparties, and the regulator's focus on mis-selling is less pronounced compared with banks in more developed markets. Despite a number of regulator-imposed limits on fees and rates charged on personal accounts and facilities, Qatari banks' ongoing profitability has been solid and they benefit from low taxes.

### Governance

Qatar National Bank faces low governance risks reflecting the bank's established governance practices as a listed firm and a track record of broadly meeting its annual guidance on financial targets. The bank's financial strategy is transparent and hosts regular investor/analyst update calls with timely reporting on financial statements, quarterly and annually. The Qatari government 50% ownership stake in QNB, which is also reflected in the composition of its board of directors, does not result in incremental governance risks because of the country's developed institutional framework.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moody's.com. In order to view the latest scores, please click [here](#) to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

## Support and structural considerations

### Government support

We assess a very high likelihood of government support for QNB's ratings. As a result, we incorporate four notches of government support uplift from the baa1 BCA, taking the deposit rating to Aa3. The very high likelihood of support incorporates the (1) dominance and importance of QNB in the local financial system, with a market share of around 50.1% in deposits as of June 2024; (2) government's 50% shareholding in the bank; and (3) willingness and capacity of the Qatari government to provide support to local banks, as illustrated through capital injections and the purchase of real estate and equity investment portfolios from banks in 2009-10.

### Source of facts and figures cited in this report

Unless noted otherwise, data related to systemwide trends is sourced from the central bank. Bank-specific figures originate from the bank's reports and Moody's Banking Financial Metrics. All figures are based on our own chart of account and may be adjusted for analytical purposes. Please refer to the document [Financial Statement Adjustments in the Analysis of Financial Institutions](#), published on 8 April 2024.

## Methodology and scorecard

### About Moody's Bank Scorecard

Our scorecard is designed to capture, express and explain in summary form our Rating Committee's judgement. When read in conjunction with our research, a fulsome presentation of our judgement is expressed. As a result, the output of our scorecard may materially differ from that suggested by raw data alone (though it has been calibrated to avoid the frequent need for strong divergence). The scorecard output and the individual scores are discussed in rating committees and may be adjusted up or down to reflect conditions specific to each rated entity.

## Rating methodology and scorecard factors

Exhibit 7

### Rating Factors

Macro Factors							
<b>Weighted Macro Profile</b>	<b>Moderate</b>	<b>100%</b>					
	+						
Factor	Historic Ratio	Initial Score	Expected Trend	Assigned Score	Key driver #1	Key driver #2	
Solvency							
Asset Risk							
Problem Loans / Gross Loans	2.3%	baa1	↔	baa1	Single name concentration	Long-run loss performance	
Capital							
Tangible Common Equity / Risk Weighted Assets (Basel III - transitional phase-in)	15.9%	a3	↔	a2	Access to capital		
Profitability							
Net Income / Tangible Assets	1.2%	baa2	↔	baa2	Loan loss charge coverage	Expected trend	
Combined Solvency Score		baa1		a3			
Liquidity							
Funding Structure							
Market Funds / Tangible Banking Assets	19.2%	baa2	↔	baa3	Term structure	Market funding quality	
Liquid Resources							
Liquid Banking Assets / Tangible Banking Assets	20.8%	baa3	↔	baa3	Additional liquidity resources		
Combined Liquidity Score		baa2		baa3			
Financial Profile							
				baa1			
Qualitative Adjustments				Adjustment			
Business Diversification				0			
Opacity and Complexity				0			
Corporate Behavior				0			
Total Qualitative Adjustments				0			
Sovereign or Affiliate constraint				Aa2			
BCA Scorecard-indicated Outcome - Range				a3 - baa2			
Assigned BCA				baa1			
Affiliate Support notching				0			
Adjusted BCA				baa1			
Instrument Class	Loss Given Failure notching	Additional notching	Preliminary Rating Assessment	Government Support notching	Local Currency Rating	Foreign Currency Rating	
Counterparty Risk Rating	1	0	a3	4	Aa2	Aa2	
Counterparty Risk Assessment	1	0	a3 (cr)	4	Aa2(cr)		
Deposits	0	0	baa1	4	Aa3	Aa3	

[1] Where dashes are shown for a particular factor (or sub-factor), the score is based on non-public information.

Source: Moody's Ratings



## Ratings

Exhibit 8

Category	Moody's Rating
<b>QATAR NATIONAL BANK (Q.P.S.C.)</b>	
Outlook	Stable
Counterparty Risk Rating	Aa2/P-1
Bank Deposits	Aa3/P-1
Baseline Credit Assessment	baa1
Adjusted Baseline Credit Assessment	baa1
Counterparty Risk Assessment	Aa2(cr)/P-1(cr)
<b>QNB FINANCE LTD</b>	
Outlook	Stable
Bkd Senior Unsecured	Aa3
Bkd Subordinate MTN	(P)A2
<b>QNB FINANSBANK A.S.</b>	
Outlook	Positive
Counterparty Risk Rating -Fgn Curr	Ba3/NP
Counterparty Risk Rating -Dom Curr	Ba2/NP
Bank Deposits -Fgn Curr	Ba3/NP
Bank Deposits -Dom Curr	Ba2/NP
Baseline Credit Assessment	b2
Adjusted Baseline Credit Assessment	ba2
Counterparty Risk Assessment	Ba2(cr)/NP(cr)
Senior Unsecured MTN -Fgn Curr	(P)Ba3
Senior Unsecured MTN -Dom Curr	(P)Ba2
Subordinate	B1 (hyb)

Source: Moody's Ratings

## Endnotes

- 1 Moody's-adjusted figures for the bank's dividend on its Additional Tier 1 capital instruments.
- 2 The NPL ratio calculation excludes suspended interest from problem loans and gross loans.
- 3 The numerator includes also provisions on Stage 1 and Stage 2 loans.
- 4 The ratings shown are QNB Finansbank A.S. domestic deposit rating and BCA.
- 5 The ratings shown are Ecobank's issuer rating, outlook and BCA.

© 2024 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved. CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES OR OTHERWISE MAKES AVAILABLE ITS MATERIALS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND MATERIALS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR MATERIALS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating process or in preparing its Materials.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at [www.moody's.com](http://www.moody's.com) under the heading "Investor Relations — Corporate Governance — Charter Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V., I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., and Moody's Local PA Clasificadora de Riesgo S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions (as defined in Moody's Investors Service Rating Symbols and Definitions): Please note that a Second Party Opinion ("SPO") is not a "credit rating". The issuance of SPOs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454